

Amendments to the Claims:

This listing of claims replaces all prior versions, and listings, of claims in this application.

Listing of Claims:

1-2. Canceled

3. (Currently Amended) An apparatus for converting an analog image signal into a digital image signal, said apparatus comprising:

a pseudo random binary sequence generator for generating a digital dither signal
having a pseudo-random sequence length;

a scrambler for scrambling said digital dither signal with an offset signal so as to generate
a dithered offset signal;

a digital-to-analog converter for converting said dithered offset signal into an analog
dithered offset signal;

a summing device for generating a dithered image signal in response to said analog
dithered offset signal and said analog image signal; and

an analog-to-digital converter for converting said dithered image signal into said digital
image signal having a frame length;

wherein said pseudo-random sequence length is substantially greater than said frame
length.

4. (Original) The apparatus as claimed in claim 3, wherein said summing device is used
to add said analog image signal with said analog dithered offset signal.

5. (Original) The apparatus as claimed in claim 3, wherein said scrambler is used to scramble at least one least significant bit of said offset signal with said digital dither signal.

6. (Currently Amended) An apparatus for converting an analog image signal into a digital image signal, said apparatus comprising:

a pseudo random binary sequence generator for generating a digital dither signal having a pseudo random sequence length;

an adder for adding said digital dither signal with an offset signal so as to generate a dithered offset signal;

a digital-to-analog converter for converting said dithered offset signal into an analog dithered offset signal;

a summing device for generating a dithered image signal in response to said analog dithered offset signal and said analog image signal; and

an analog-to-digital converter for converting said dithered image signal into said digital image signal having a frame length;

wherein said pseudo-random sequence length is substantially greater than said frame length.

7. (Previously Presented) The apparatus as claimed in claim 6, wherein said summing device is used to add said analog image signal with said analog dithered offset signal.

8. (Previously Presented) The apparatus as claimed in claim 6, wherein said adder is used to add at least one least significant bit of said offset signal with said digital dither signal.

9-10. (canceled)

11. (Currently Amended) A method for converting an analog image signal into a digital image signal, said method comprising the following steps of:

- (a) generating a digital dither signal having a pseudo random sequence length;
- (b) scrambling said digital dither signal with an offset signal so as to generate a dithered offset signal;
- (c) converting said dithered offset signal into an analog dithered offset signal;
- (d) adding said analog image signal with said analog dithered offset signal to generate a dithered image signal; and
- (e) converting said dithered image signal into said digital image signal having a frame length;
wherein said pseudo random sequence length is substantially greater than said frame length.

12. (Original) The method as claimed in claim 11, wherein said digital dither signal is provided with pseudo random binary sequence.

13. (Original) The method as claimed in claim 11, wherein at least one least significant bit of said offset signal is scrambled with said digital dither signal in step (b).

14. (Currently Amended) A method for converting an analog image signal into a digital image signal, said method comprising the following steps of:

- (a) generating a digital dither signal having a pseudo random sequence length;
- (b) adding said digital dither signal with an offset signal so as to generate a dithered offset signal;
- (c) converting said dithered offset signal into an analog dithered offset signal;
- (d) adding said analog image signal with said analog dithered offset signal to generate a dithered image signal; and
- (e) converting said dithered image signal into said digital image signal having a frame length;
wherein said pseudo random sequence length is substantially greater than said frame length.

15. (Original) The method as claimed in claim 14, wherein said digital dither signal is provided with pseudo random binary sequence.

16. (Original) The method as claimed in claim 14, wherein at least one least significant bit of said offset signal is added with said digital dither signal in step (b).

17. (New) An apparatus for converting an analog image signal into a digital image signal, said apparatus comprising:

a pseudo random binary sequence generator for generating a digital dither signal having a pseudo random sequence length;

a digital-to-analog converter for converting said digital dither signal into an analog dither signal;

a summing device for generating a dithered image signal in response to said analog dither signal and said analog image signal; and

an analog-to-digital converter for converting said dithered image signal into said digital image signal having a frame length;

wherein said pseudo random sequence length is substantially greater than said frame length.

18. (New) The apparatus as claimed in claim 17, wherein said summing device is used to add said analog image signal and said analog dither signal.

19. (New) The apparatus as claimed in claim 17, wherein said digital dither signal is a dithered offset signal

20. (New) A method for converting an analog image signal into a digital image signal, said method comprising the following steps of:

- (a) generating a digital dither signal having a pseudo random sequence length;
 - (b) converting said digital dither signal into an analog dither signal;
 - (c) generating a dithered image signal in response to said analog image signal and said analog dither signal; and
 - (d) converting said dithered image signal into said digital image signal having a frame length;
- wherein said pseudo random sequence length is substantially greater than said frame length.

21. (New) The method as claimed in claim 20, wherein said dithered image signal is generated by adding said analog image signal and said analog dither signal in step (c).

22. (New) The method as claimed in claim 20, wherein said digital dither signal is a dithered offset signal.